IN THE CLAIMS

Please cancel claims 34, 35, 40, 41, 47 and 48, amend claims 21, 37 and 44, and add new claim 51 as follows:

1-20. (CANCELLED)

21. (CURRENTLY AMENDED) A system comprising a biocompatible polymer matrix and an amplification component incorporated within the biocompatible polymer matrix that is capable of producing a polyhydroxylated analyte signal upon interrogation by an optical system, wherein said amplification component is covalently attached to said biocompatible polymer matrix and requires a photo-induced electron transfer for production of said signal, and further wherein said biocompatible polymer matrix is permeable to glucose.

22. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, wherein said biocompatible polymer matrix is a solid substrate.

23. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 22, wherein said solid substrate is a member selected from the group consisting of polyurethane, silicon, silicon-containing polymer, chronoflex, P-HEMA or sol-gel.

24. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, wherein said biocompatible polymer matrix comprises a hydrophilic polymer.

25. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, wherein said biocompatible polymer is a member selected from the group consisting of a polyurethane, a silicone, an acrylic, and a silicone containing polyurethane.

26. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, wherein said biocompatible polymer matrix is a member selected from the group consisting of a disk, a cylinder, a patch, a microsphere and a refillable sack.

27. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 26, wherein said biocompatible polymer matrix is a microsphere.

28. (PREVIOUSLY PRESENTED) The biocompatible polymer matrix in accordance with claim 21, wherein said biocompatible polymer matrix is adapted to be implanted subdermally.

29. (CANCELLED)

30. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, wherein said biocompatible polymer matrix is permeable to oxygen.

31. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, wherein said biocompatible polymer matrix is optically transparent.

32. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, further comprising a biocompatible shell.

33. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 32, wherein said biocompatible shell is a member selected from the group consisting of dialysis fiber, teflon cloth, resorbable polymers and islet encapsulation materials.

34. (CANCELLED)

35. (CANCELLED)

36. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 21, wherein said amplification component comprises a boronic acid moiety.

37. (CURRENTLY AMENDED) A system comprising a biocompatible polymer matrix and a fluorescent transducer component incorporated within the biocompatible polymer matrix that binds polyhydroxylate analyte and whose fluorescence is modulated by a photo-induced electron transfer process, wherein upon illumination of the fluorescent transducer component in the presence of polyhydroxylate analyte a change in fluorescence is observable that is correlatable with the concentration of bound polyhydroxylate analyte and wherein polyhydroxylate analyte binding to the fluorescent transducer component produces a decrease in the fluorescence of the fluorescent transducer component.

38. (ORIGINAL) The biocompatible polymer matrix of claim 37, wherein the change in fluorescence is measured as a change in fluorescent intensity.

39. (ORIGINAL) The biocompatible polymer matrix of claim 37, wherein the change in fluorescence is measured as a change in the average fluorescent lifetime of the fluorescent transducer component.

40. (CANCELLED)

41. (CANCELLED)

42. (ORIGINAL) The biocompatible polymer matrix of claim 37, wherein the photo-induced electron transfer process of the fluorescent transducer component is modulated by polyhydroxylate analyte binding.

43. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 37, wherein said fluorescent transducer component comprises a boronic acid moiety.

44. (CURRENTLY AMENDED) A system comprising a biocompatible polymer matrix and an amplification component incorporated within the biocompatible polymer matrix that is capable of producing a signal upon interrogation by an optical system, wherein the signal is

modulated by polyhydroxylate analyte binding and wherein polyhydroxylate analyte binding modulates a photo-induced electron transfer process, and further wherein bound polyhydroxylate analyte produces a decrease in the signal.

45. (ORIGINAL) The biocompatible polymer matrix of claim 44, wherein the signal is measured as a change in fluorescent intensity of the amplification component.

46. (ORIGINAL) The biocompatible polymer matrix of claim 44, wherein the signal is measured as a change in the average fluorescent lifetime of the amplification component.

47. (CANCELLED)

48. (CANCELLED)

49. (ORIGINAL) The biocompatible polymer matrix of claim 44, wherein the photo-induced electron transfer process is modulated by bound polyhydroxylate analyte.

50. (ORIGINAL) The biocompatible polymer matrix in accordance with claim 44, wherein said amplification component comprises a boronic acid moiety.

--51. (NEW) A system comprising a biocompatible polymer matrix having a mesh incorporated therein and an amplification component incorporated within the biocompatible polymer matrix that is capable of producing a polyhydroxylated analyte signal upon interrogation by an optical system, wherein said amplification component requires a photo-induced electron transfer for production of said signal, and further wherein said biocompatible polymer matrix is permeable to glucose.--